

Where in the World is Ryan?

Practicing Latitude & Longitude

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Grade Level 5
Duration 2 class periods

National Standards

GEOGRAPHY

Element 1: The World in Spatial Terms

1. How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information

AZ Standards

MATHEMATICS

Geometry

5.G.A.2. Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

Arizona Social Science Standards

DISCIPLINARY SKILLS AND PROCESSES

Social Scientist gather, interpret, and use evidence to develop claims and answer historical, economic, geographical, and political questions and communicate their conclusions.

5. 5.SP3.7 Construct and present explanations using reasoning, correct sequence, examples and details with relevant information and data.

SIOP Elements

<p>Preparation Adapting content Linking to background Linking to past learning Strategies used</p>	<p>Scaffolding Modeling Guided practice Independent practice Comprehensible input</p>	<p>Grouping Option Whole class Small groups Partners Independent</p>
<p>Integrating Processes Reading Writing Speaking Listening</p>	<p>Application Hands on Meaningful Linked to objectives Promotes engagement</p>	<p>Assessment Individual Group Written Oral</p>

Arizona English Language Proficiency Standards

Stage III

Basic

Reading

Standard 3: The student will analyze text for expression, enjoyment, and response to other related content areas.

The student will demonstrate knowledge of reading comprehension by:

B-22: locating information for a specific purpose. (E.G., Atlas, glossary, textbook, indexes, table of contents, etc.)

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Overview

Maps are tools for understanding our world. Students will work with maps all through their educational years. Most adults will use maps during their lifetimes as travelers or in their careers. In order to interpret maps, users need to know and apply certain spatial thinking skills.

Purpose

In this lesson the students will identify the difference between relative and absolute location and practice locating places in the world using a set of cards and a world map.

Key Vocabulary

latitude: distance north or south of the equator measured in degrees

longitude: distance measured in degree east or west from an imaginary line called the Prime Meridian

grid: a pattern of lines that cross each other to form squares on a piece of paper, a map, etc.

absolute location: an exact position using latitude and longitude

relative location: the way you find a place by using words like “how far it is” or “in what direction it is” from another place

Materials

- Pencils
- Atlases
- Optional: Computer lab or library books (if you wish students to find an interesting fact about each location)
- Globes (optional)
- Where in the Word is Ryan? map with destinations labeled
- Large World map posted on classroom wall
- Computer and projector
- Internet access
- Vocabulary Cards
- Vocabulary Test and Answer Key
- Location Cards 1-10 (Paragraph Frames)
- Tape
- Boat markers numbered 1-10
- Optional plan: 1 boat marker but you must have each group wait for teacher approval before going to the next card
- Large Chart Paper
- XY Grid Assessment

Objectives

The student will be able to:

1. read and interpret maps.
2. use a grid to locate places.
3. Identify the difference between relative and absolute location.
4. locate information.

Procedures

Prerequisite Skills: Students already have learned how to do latitude and longitude. Several YouTube videos can be used for review. A short overview of latitude and longitude can be found at:

<https://www.youtube.com/watch?v=MSA88mmFuyE>

A very thorough video on step by step instructions on how to locate places with longitude and latitude can be found at:

<https://www.youtube.com/watch?v=wcfqKiEmleQ>

SESSION ONE

Engage:

1. Tell students they are going to be travelers today and the point of their traveling is to find Ryan.
2. Relate a story about traveling. Have 1-2 students also share a quick story about traveling. Emphasize that they might cross oceans and continents as they try to locate Ryan. These are all places they might like to visit someday. So let's travel the world and find Ryan.
3. Explain that they will locate Ryan by using 10 cards that give them clues as to where he is located. They will work in groups of three. Their group's job is to read the clues and find Ryan on their Where in the World is Ryan? map. They need to agree on their decisions and fill out each card before moving on to the next card.
(Preparation: Linking to background)
(Grouping: Small groups)

Explore:

4. Review the terms in the Vocabulary Cards.
5. Make sure they really understand the difference between relative and absolute location by giving them some examples like: My house is near the school. (relative) My house is located at 33 N. Main Street. (absolute) My mom likes the grocery store that is a block from our house. (relative)
Phoenix is located at 33 degrees North and 112 degrees West. (absolute)

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6. Divide the students into groups of three. Give each group an atlas, globe (optional), 10 boat markers numbered 1-10, and a Where in the World is Ryan? map. Model several times for the whole class how one finds locations on a world map (posted in the classroom) using the format in which the cards are written.
7. If students are struggling to keep latitude and longitude separate, have students come up and act out "I am a longitude line" "I am a latitude line." Have students show other students how to use the lines to locate places.
8. If students are still struggling, show the YouTube video <https://www.youtube.com/watch?v=wcfqKiEmleQ>
(Integrating Processes: Speaking and Listening) (Scaffolding: Comprehensible input, Modeling, Guided practice)

Explain:

9. When students are ready to move on, give them rules to the activity. Groups will have thirty minutes to complete 1-8 of the cards. They will use the atlas, globe, and map to find Ryan. They will have a boat as a marker to locate Ryan on the Where in the World is Ryan? map. They must also write the correct location on the card. They must also be ready to explain how they decided on this location. Everyone must be working on finding Ryan.
10. Give each group ten cards. One student reads the card to the group. One student looks at the globe and the other looks at an atlas. As a group, they will come up with an answer.
11. Their answer will have two forms: 1)The group will complete the paragraph frame and be prepared to explain to the class how the group came to this decision. 2)The group will place the boat on the Where in the World is Ryan? map to mark Ryan's location. They will only complete cards 1-8 at this time.
12. To ensure the directions are understood, have a student explain the procedures for what they are doing the next thirty minutes. **(Scaffolding: Comprehensive Input) (Integrating Processes: Speaking and Listening) (Grouping Option: Whole class, Small groups)**
13. When groups have mastered cards 1-8, give them cards 9-10.
14. End the session with students numbering on the Where in the World is Ryan? map the order of the places that Ryan visited. Return the boats to the teacher.

SESSION TWO

Elaborate:

15. Now have students take what they have learned from practicing latitude and longitude and transfer this skill to a XY graph.
16. Explain that the process is very similar. Just as latitude is read first so is the X axis read first.
17. Post some chart paper on which a grid has been drawn. Have students look at the numbering system and find points on the X axis.
18. Then have other students come up to the chart paper and find points on the Y axis.
19. Have the students practice with several examples of XY coordinates.
(Integrating Processes: Reading, Speaking and Listening) (Grouping Option: Small groups)

Evaluate

20. Have students complete the math worksheet individually. **(Assessment: Individual)**
21. To develop oral language skills, have the groups one at a time go to the world map posted on the classroom wall and place their boat marker where the latitude and longitude marker should be for a specified card. One member from the group will then explain why they chose this position on the map. Another member will read their completed card to the class. **(Application: Hands on, Promotes Engagement)**

Assessment

Students will score the following to be considered mastery:

- 80% or higher on the map work including the final two cards for a geography grade.
- 80% or higher on the correct answers written into the paragraph frames.
- 80% or higher on the the math worksheet.
- 80% or higher on the vocabulary test.

Extensions

Students can use Google Earth to view other countries, determine geographical features, and find latitude and longitude coordinates.

Show images of the locations that Ryan has visited so students can visualize the places.

Another extension would be to have students make their own cards of places they would like to visit and have another student determine where they are.

Looking on websites to find a career using latitude and longitude. These were some of the careers

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- ✓ land surveyor
- ✓ aircraft navigator
- ✓ air/sea rescue
- ✓ ship navigator
- ✓ telecommunications engineer
- ✓ blimp navigator
- ✓ map maker
- ✓ spacecraft engineer
- ✓ riverboat pilot
- ✓ petroleum engineer
- ✓ oilfield geologist
- ✓ seismologist
- ✓ construction
- ✓ excavation
- ✓ water resources
- ✓ meteorology (weather)
- ✓ ocean fishing
- ✓ navy gunnery
- ✓ missile programming

Sources

World Map from Arizona Geographic Alliance
<http://geoalliance.asu.edu/azga/>

Youtube video:

<https://www.youtube.com/watch?v=wcfgKiEmleQ>
<https://www.youtube.com/watch?v=MSA88mmFuyE>

Careers:

http://www.answers.com/Q/What_are_3_jobs_that_in_volve_latitude_and_longitude